June 2006

Fact Sheet: Proposed Cleanup Actions in the La Sal Watershed

San Juan County, Utah

BLM invites the public to comment on the cleanup actions proposed for abandoned uranium mines in the La Sal Watershed

YOUR INPUT IS REQUESTED

IMPORTANT INFORMATION

Public Comment Period
June 9, 2006 to
July 10, 2006

Information is available for review at the BLM Moab Field Office, the BLM Monticello Field Office and the La Sal Store. Also, see www.blm.ut.gov.

CONTACTS

Terry Snyder
Project Manager
BLM Utah State Office
440 West 200 South, Suite 500
Salt Lake City, Utah 84101
801 539-4026
E-mail: Terry_Snyder@blm.gov

Frank Bain
BLM Moab Field Office
82 E. Dogwood
Moab, UT 84532
435 259-2141

The U.S Department of Interior, Bureau of Land Management (BLM) is notifying and seeking public input on a proposed action to cleanup five abandoned uranium mines near La Sal, Utah. The majority of the project area lies within San Juan County, Utah; however, the eastern portion of the area extends into Montrose County, Colorado. See attached map. This cleanup activity is part of the ongoing efforts to address contaminated sites located mostly on land under the jurisdiction, custody, and control of BLM. A portion of the Firefly/Pygmy Mine site is located on lands under the jurisdiction, custody, and control of the U.S. Forest Service. A **non-time critical removal action** is necessary for the mines comprising the La Sal Creek Project because waste rock present at the mines contains radionuclide and metals concentrations that pose a risk to human and ecological receptors and to the environment. The BLM is the lead agency for performing the non-time critical removal action. The BLM would like comments on the proposed options for the mine areas.

Comments will be accepted from June 9, 2006 to July 10, 2006. Copies of the Engineering Evaluation/ Cost Analysis (EE/CA) and the Administrative Record for the Site are located at the Utah BLM Moab and Monticello Field Offices and the La Sal Store. A copy of the EE/CA, Draft Administrative Record Index, News Release and Notice of Public Availability of the Administrative Record is available at www.blm.ut.gov.

Site Description and History

The project area is located in southeastern Utah and southwestern Colorado, near the Town of La Sal, Utah and encompasses three abandoned uranium mine sites: (1) the Firefly/Pygmy Mine Site, (2) the Vanadium Queen Mine Site, and (3) the Black Hat/Blue Cap Mine Complex which includes the Black Hat Mine, Blue Cap Mine, and Saint Patrick Mine. The mines are located along the northern rim of the canyon formed by La Sal Creek, a perennial stream that drains the southern flank of the La Sal Mountains and flows in an easterly direction south of the mines. The project area encompasses the mines and peripheral sampling stations established at upstream and downstream locations on the major perennial streams of La Sal Creek, Twomile Creek, and Hop Creek.

Drilling programs conducted by the U.S. Geological Survey (USGS) in the 1950s as well as other exploration programs resulted in the discovery of uranium and vanadium mineralization in the area which has become known as the “La Sal Creek Mineral Belt.” The mines were constructed to intercept roll-front type uranium deposits occurring in paleochannels within the Salt Wash Sandstone Member of the Jurassic Morrison Formation.

Mining and related activities resulted in various environmental effects. Site investigations and regulatory actions related to water quality and other issues have taken place before and since the mines closed. Those investigations have determined that the La Sal Creek **Watershed** has been affected by the mining activities. Mining and mineral processing generated waste rock and debris. Over the years, surface runoff carried soil and waste materials into the streams.

Cleanup Alternative Analysis

An EE/CA was developed for the Site to assist in the screening of cleanup options. The EE/CA includes the results of the site characterization, a streamlined risk evaluation and alternative analysis.

Risk Assessment Summary

Water draining from the Firefly/Pygmy Mine, Vanadium Queen Mine, and Blue Cap Mine poses low risks to campers at the mines. However, it is suspected that contaminants are leaching from the waste rock dumps as a result of the adit drainage infiltrating the dump materials; thereby potentially degrading groundwater and surface-water quality down gradient of the mines. Waste rock poses a potential threat to campers at the

Firefly/Pygmy, Vanadium Queen, and Blue Cap Mines. Gamma exposure is the principal threat posed to campers at these mines. In addition, above **background** arsenic levels in waste rock comprising portions of the mine dumps at the Firefly/Pygmy Mine, Vanadium Queen, and Blue Cap Mines pose moderate risk to campers, and radionuclide activities are generally higher in waste rock than in background soil. Off-site migration of contaminants from the waste-rock dumps at the Firefly/Pygmy, Vanadium Queen, Blue Cap, and Black Hat mines as a result of erosion and mass wasting processes poses a threat to degradation of water resources (La Sal Creek and Lion Canyon Creek).

Although surface water draining from the Firefly/Pygmy and Vanadium Queen Mines potentially pose threats to aquatic life, the threats are not considered to be of concern because waters occur only along isolated reaches at the mines. Adit discharge from the Blue Cap Mine represents an anthropogenic (man-made) source for the headwaters of Lion Canyon Creek and is considered a significant source for the metals and radionuclide levels within the perennial reach of the creek posing threats to aquatic life.

Removal Action Objectives

Removal action objectives were established in the EE/CA. They were developed to ensure compliance with the State and Federal rules and regulations and to ensure that the actions are protective of human health and the environment. Based on this process, the following objectives were identified:

- Prevent or reduce the potential for water draining from the adit to contact and infiltrate the materials comprising the waste-rock dump and provide warning to visitors that the water poses potential hazard if used as a drinking-water source.
- Prevent or reduce actual or potential exposure of nearby human or biotic populations from direct contact with the waste rock and gamma radiation emitting from waste rock in areas which could be potentially utilized for unsanctioned camping.
- Reduce the potential for off-site migration of contaminants as a result of erosion and mass wasting processes.
- Properly close the mine portal.
- Discourage livestock grazing in the mine area.
- Maintain the natural character of the mine area.
- Satisfy state and federal **ARARs**.

Based on the removal action objectives, all reasonable potential response actions and technologies were examined. The most feasible actions and technologies were then assembled into specific alternatives for waste rock and mine drainage. Three alternatives were examined for the waste rock.

- No Action
- Consolidation of Waste Rock and Containment
- Consolidation, Regrading, and Containment

Although the No Action alternative would not meet this criterion, it was retained for comparison.
The alternatives examined for the infiltration mitigation of mine drainage were:

- No Action
- Re-aligned Channel
- Lined Channel
- Piped Drainage

These alternatives were analyzed with respect to the following evaluation criteria: **effectiveness, implementability, and cost**. Although the No Action alternative would not satisfy the objectives, it was retained for comparison purposes.

BLM's Proposed Action

Of the alternatives that have been analyzed, the preferred cleanup options for waste rock at the mine sites are:

- Consolidation of waste rock in ancillary and drainage areas on the mine bench.
- Regrading the waste dumps to a stable configuration.
- Installation of erosion-control measures on the regraded surfaces and dumps.
- Amending the waste rock along erosion-control feature alignments with soil and nutrients followed by seeding and fertilizing.
- Covering remaining potential camping areas with 6-inch of soil followed by seeding and fertilizing.
- Installation of an earthen berm in combination with sediment retention pond along the lower perimeter of the dump.
- Installation of vegetated terraces on the slope of the Blue Cap dump and an engineered containment structure along the perimeter of the mine dump.

Of the alternatives that have been analyzed, the preferred cleanup options for mine drainage are:

- Construction of a drainage collection area as a component of the portal closure
- Construction of a trench for the mine water collection pipe from the portal to the confluence with a small ephemeral drainage.
- Construction of an anaerobic treatment wetland cell for the waters from the Black Hat Mine.

These actions satisfy the removal action objectives and evaluation criteria to the greatest degree. The actions taken to contain or reduce the contamination within the La Sal Watershed will ensure the protection of human health and the environment.

GLOSSARY

ARARs are federal standards, requirements, criteria, limitations, or more stringent state standards determined to be legally applicable or relevant and appropriate to the circumstances at a given site.

The **cost** of an alternative includes the capital cost of construction and post-removal site control costs, which include operating and maintenance costs.

Background is the concentration of a hazardous substance that provides a defensible reference point with which to evaluate whether or not a release from the site has occurred. The background level should be reflective of the concentration of the hazardous substance in the medium of concern for the environmental setting on or near a site.

An **engineering evaluation/ cost analysis** is an official document that evaluates feasible and cost-effective alternatives for proposed removal actions, and recommends a specific removal action.

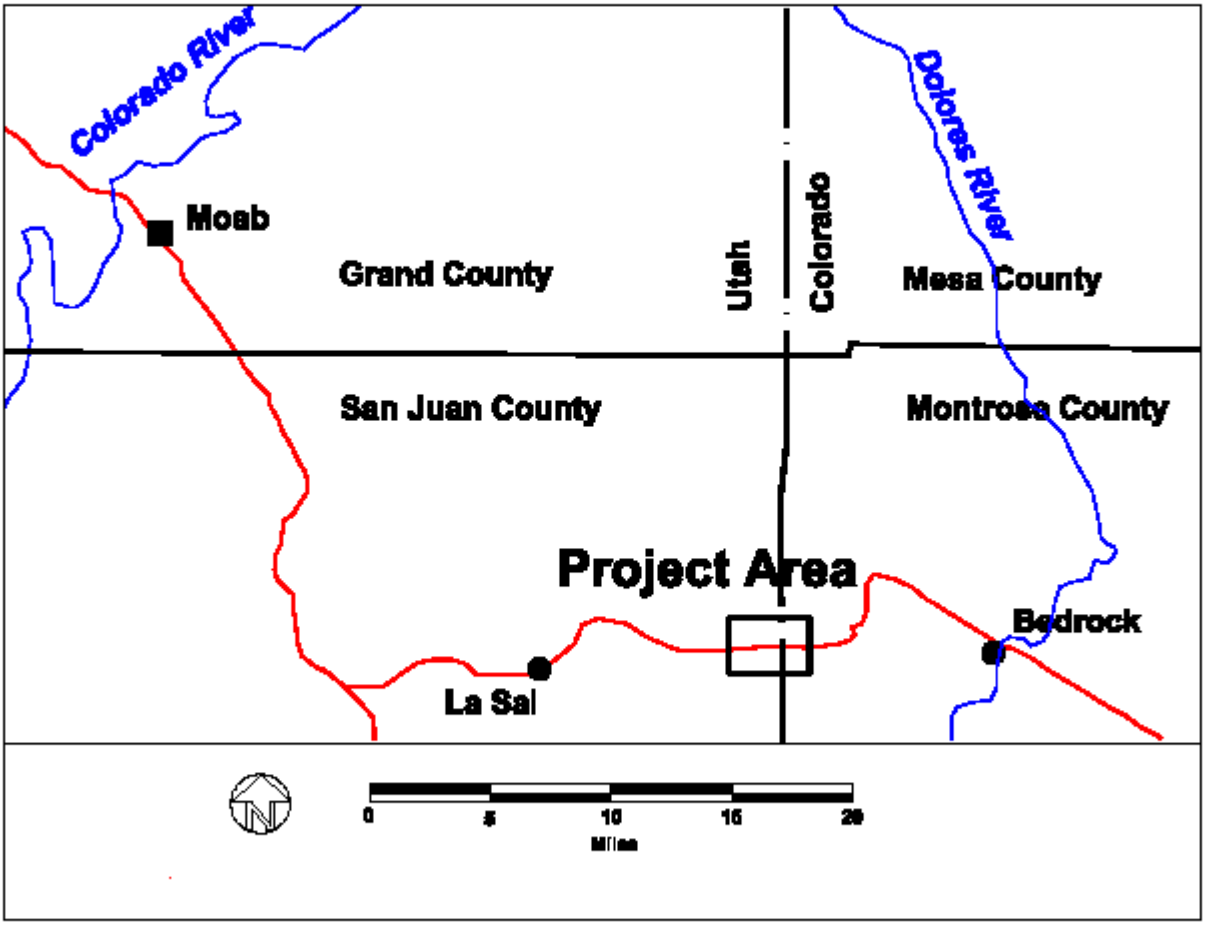
The **effectiveness** of the alternatives is based on meeting the removal action objectives.

Implementability refers to the technical and administrative feasibility of implementing the alternative including the complexity of the performing and maintaining the alternative, construction, logistical, and schedule considerations and compliance with applicable laws.

A **non-time-critical removal action** is conducted at sites when BLM, as the lead agency, determines that a removal action is appropriate to address an immediate threat to human health and the environment and a planning period of at least six months is available before on-site activities must begin.

A **removal action** is an immediate action taken over the short term to address a release or threatened release of hazardous substances. The Comprehensive Environmental Response, Compensation and Liability Act of 1993 (CERCLA) defines three types of Removal Actions: emergency removals, where action is required within hours or days; time-critical removals, where action may be delayed up to six months; and non-time-critical removals, where action may be delayed more than six months.

The term **watershed** refers to the land that produces storm water runoff and contains streams that run into a specific creek or river.


Colorado River
Moab
Grand County
Utah
Colorado
Dolores River
Mesa County
San Juan County
Montrose County
Project Area
Bedrock
La Sal
0
5
10
15
20
Miles